# Mirror

The invention relates to a mirror according to the precharacterizing part of claim 1.

Mirrors are known which comprise a reflecting coating causing the reflective effect, the coating being located on the rear side of a transparent glass carrier facing away from the viewer.

It is further known that such mirrors may comprise an integrated electrical means, e.g. an illumination means.

It is an object of the invention to provide a mirror of the aforementioned type which may comprise different electrical functions and is particularly suitable for use in damp locations.

This object is solved with the features of claim 1.

According to the invention, the first glass plate advantageously comprises transparent and/or half-reflecting portions, wherein said first glass plate is bonded to a second glass plate with the aid of a transparent adhesive layer in the form of a laminated glass pane. Electrical means are mounted on an electrically conducting coating of the second glass plate in portions opposite the transparent and/or half-reflecting portions of the first glass plate. The first glass plate thus comprises transparent or half-reflecting portion configured as window-like recesses, which, in connection with the electrical means, allow the mirror to perform specific functions.

The electrically conducting coating is preferably a pyrolytically applied layer. Such a layer comprises a high degree of roughness such that electrical components comprising electrically conducting adhesives can be firmly coupled with the surface of the electrically conducting and pyrolytically applied coat-

ing. The rough structure of the coating further allows high currents to be introduced without the risk of detachment of the electrically conducting coating.

In this manner, it is also possible to operate the electrical means at low voltage since higher currents can be supplied via the electrically conducting coating.

The electrical means are preferably arranged on the side of the second glass plate facing the first glass plate.

The electrical coating is arranged essentially across the entire surface on the side of the second glass plate facing the first glass plate.

The electrical coating may further be configured as a heating surface on a portion of the side of the second glass plate facing the first glass plate.

In the border region between the first and the second glass plate a circumferential seal is arranged which protects the laminated glass pane made up of the two glass plates during regrinding of the mirror edges.

The electrical means comprise, for example, illumination and/or switching and/or display means.

The illumination means may comprise light-emitting diodes, while the switching means may comprise sensors, in particular photo-optical sensors. The switching means may further be configured as a combination of a light-emitting diode and a photocell. Such a combination is, for example, suitable for detection of movements in front of the reflecting surface.

In a particular combination of photocells, the switching means may perform a control function in that the position of a finger is determined such that the finger position can be used like a cursor for controlling an instrument. On the electrically conducting coating the electrical signals are transmitted via con-

ductor paths serving as data lines or signal lines to the edge of the mirror, and from there they can be forwarded to a processing means.

The display means may comprise a flat screen or a light-emitting diode field. In a light-emitting diode field information can be transmitted in the form of ticker. On a flat screen, TV or other video signals can be represented.

The laminated glass mirror made up of the two glass plates and the adhesive layer preferably has a thickness of approximately 8 to 15 mm, preferably approximately 10 to 12 mm. The adhesive layer is, for example, composed of a cast resin layer which embeds the electrical means on the second glass plate.

Hereunder an embodiment of the invention is explained in detail with reference to the single drawing:

The single drawing shows a mirror 1 comprising a first transparent glass plate 4 and a second transparent glass plate 10 bonded to each other with the aid of a transparent adhesive layer 12.

The first glass plate 4 is provided with a reflecting film 2 on the side facing away from the viewer, said reflecting film 2 being composed of a reflecting coating causing the reflective effect. The reflecting film 2 comprises recesses at suitable locations to form a transparent portion 8. Alternatively, this portion 8 may be half-reflecting. The recessed portions 8 may, for example, have a size of 30 x 30 mm.

The second glass plate 10 is provided, on the side facing the first glass plate 4, with an electrically conducting coating 14 which may be divided into a plurality of conductor paths 16, wherein the conductor paths 16 are separated from each other by isolation paths 18. At the outermost edge of the mirror 1 configured as a laminated glass pane, a circumferential seal 22 is arranged which, in particular when the mirror edges are reground, is destined to prevent the mirror or the adhesive layer 12 from being damaged. At the same

time, the seal 22 offers special tightness to prevent the penetration of moisture.

The electrically conducting coating 14 is a pyrolytically applied layer with a rough surface on which, for example, light-emitting diodes 6 are coupled with the aid of electrically conducting adhesive. The electrically conducting adhesive allows permanent electrical contacting and at the same time fixes the component, e.g. the light-emitting diode.

The light-emitting diode is arranged at a location of the second glass plate 10 opposite a transparent or half-reflecting portion 8 such that the light-emitting diode 6 serves as an illumination means.

In a half-reflecting portion 8, the light-emitting diode is not visible when switched off.

The illustrated embodiment further comprises a combination of a light-emitting diode 6 and a photocell 24, both being arranged opposite a transparent portion 8.

For example, the light-emitting diode 6 together with a photocell 24 may form a switching means. It shall be understood that other sensor means may be arranged on the electrically conducting layer 14 of the second glass plate 10.

The electrically conducting coating 14 may further be used as a heating surface 20 since due to the resistance properties the electrically conducting coating is adapted to be heated upon introduction of current. This allows the mirror 1 to be prevented from misting over.

The described mirror may thus be a laminated glass mirror with an integrated cable-free illumination means and/or switching or sensor means and/or panel heating, wherein the mirror is particularly suitable for damp locations. Fur-

ther, the mirror can be integrated into shower cubicles, e.g. in the form of a side wall.

The mirror 1 is cable-free with regard to the internal interconnection of the electrical components. It shall be understood that for the purpose of current supply or transmission of data and/or signals, cables may be connected to the edge or the rear side of the mirror 1.